MEMORANDUM

RE: Ex Parte Communications in Connection with
Docket No. EERE-2016-BT-STD-0022
Energy Conservation Standards for Uninterruptible Power Supplies: Pre-Publication
Energy Conservations Standards Final Rule

To: expartecommunications@hq.doe.gov

From: Alex Boesenberg, Senior Manager of Regulatory Affairs
National Electrical Manufacturers Association

Enc: Graphs of UPS Efficiency Data versus Current and Pre-publication Standards

Date: July 5, 2017

This memorandum memorializes a communication between DOE staff and members of the NEMA Power Electronics Section in connection with this proceeding. NEMA thanks the DOE for the opportunity to follow up on our discussion of May 24, 2017 with a more detailed meeting on June 29, 2017 to discuss the continued concerns of NEMA staff and members regarding the feasibility and timing of energy conservation standards for Uninterruptible Power Supplies (UPS). It is our hope that the DOE will consider this additional information as supporting justification to reopen the rulemaking, as requested in our letter to Secretary Perry of March 9, 2017.

Attendees of the June 29th meeting were as follows: Ashley Armstrong (DOE), John Cymbalsky (DOE), Kyle Pitsor (NEMA), Clark Silcox (NEMA)(part-time), Alex Boesenberg (NEMA), Robert Spears (Eaton), Jay Taylor (Schneider Electric), Anna Pavlova (Schneider Electric), Alex McBride (ITI) and Keith Goshia (Vertiv).

Following opening remarks and introductions the discussion covered the topics summarized below.

Shipments: NEMA members are concerned that UPS shipments in recent years are decreasing and that the Manufacturing Impact Analysis may be understating the financial impacts of the pre-publication standards. DOE staff replied that while shipments for some products are noted as increasing in the Technical Support Document (TSD) analysis, shipments for others are decreasing so there are both conditions depending on the product design type.

Implementation timeline: NEMA members are concerned that the 2-year implementation period will cause significant hardship in terms of capital costs and engineering resource needs. A 5-year period would align with product refresh cycles and minimize the burden of conversion and upgrade. DOE noted that the authority to conduct this rulemaking stems from EPCA/EISA tasking to review Battery Charger energy conservation standards and that statute specifies a 2 year implementation timeframe. NEMA was invited to offer analysis of citations of statute that might afford DOE the discretion to assign a 5-year period, though the DOE noted they could see no path to this outcome themselves. NEMA reviewed this issue following the discussion and agrees that EISA-2007 (amending Section 135 EPAct 2005) requires that an energy conservation standard issued under subsection 325(u) of EPCA shall be applicable to products manufactured or imported beginning on the date that is 2 years after the date of issuance. The difficulty with Congress' determination is that no one in industry (and, we believe, Congress) foresaw in 2005 or 2007 that uninterruptible power supplies would be deemed a "battery charger" under this subsection, and if someone had brought that possibility to the attention of

Congress, Congress may have treated uninterruptible power supplies as a separate type of covered product in a larger class of battery charger products or separate from battery chargers altogether. We note that DOE moved UPS back and forth between two different rulemakings before deciding that UPS met the congressional definition of battery charger.

Product designs and secondary features: NEMA and its members remain concerned that the pre-publication standards will reduce consumer-demanded functionality in products because of the associated power consumption of secondary features that cannot be turned completely off by the user. It is the belief of NEMA that even though the new UPS test procedure allows for features to be disabled on the product display or through consumer-level (non-expert) steps, too many features cannot be fully disabled and the associated power draw will cause these products to fail the higher proposed standards. DOE requested NEMA supply data and documentation of this and how it occurs to better understand this issue. NEMA will coordinate discussion and testing of some products to illustrate this point more fully.

Platform vs Point product design practices: Today most manufacturers design a parent platform which is then modified to add or remove features and vary the wattage capacity of the original design, which in turn begets a family of related products on or about the same efficiency level. When challenged with very high standards that are represented by a curve graphically, there is concern that a modified platform might fall below the curve at some higher or lower wattage, though it passes at its original design point. The path to alleviate this risk is to pursue products designed to meet an efficiency level at a specific point and with a specific set of pre-determined features. The point-product approach is more costly in terms of time and resources. NEMA members believe that the high standards for Voltage Independent (VI) and Voltage and Frequency Independent (VFI) UPS will cause point-product redesigns to be necessary, and that this condition is not accurately examined in the Manufacturing Impact Analysis (MIA) which assumes current design practices (platform) will continue.

NEMA members continue to be strongly concerned that the pre-publication standards for VFI and VI UPS are too stringent and will eliminate too many, or all, products available today. Graphs of the pre-publication standards against the data set from the TSD were reviewed, and are attached to this memorandum. NEMA members noted their concerns for VFI products for the 300W-700W product class in light of the pre-publication standards. DOE noted on the NEMA graph provided two or three data points for products that fall on the efficiency curve's line and that those count as compliant designs. NEMA members disagreed, and stated that they do not stake their reputations and financial liability (risk of enforcement fines) on products that just meet the minimum. Instead, overdesign is needed to account for manufacturing variation and instrument variation during testing. As such, in the eyes of NEMA members, there are NO VFI products below 900W today that can pass the pre-publication standards and all products for those wattages must be redesigned. The DOE's opinion that there are products that do pass (barely) illustrates NEMA's concern that this impact is not accurately assessed in the TSD analysis. Manufacturers need margin to allow for manufacturing and test equipment variations. In practical terms for manufacturers, a minimum efficiency curve which is drawn through one or more product's data points actually cuts those products out. Only products that fall above the curve can be considered passing future standards, when variation margin is taken into account. The practical impact of this is that it would cause a low or non-existent selection of VFI products below 700W, which would force consumers who need this type of product to buy larger capacity, more expensive units, and then operate them at a low load-point which would in turn would yield lower energy savings and greater consumer impact than reflected in the TSD analyses.

A similar challenge exists for VI products, though not as acute. Again, those products whose data points fall exactly on the curve are considered as non-passing in the eyes of NEMA members, and that impact should be accurately factored into analyses.

NEMA members agree that sufficient Voltage and Frequency Dependent (VFD) product should be available post-rule, as the design of these products was previously impacted by California Energy Commission standards and by nature of their design they are more energy efficient than the other UPS classifications (VI and VFI).

A NEMA member noted that there are some multi-mode products being introduced into the market of late, termed “VFD with boost”. These products, when demanded, function with a rudimentary VFI response. The test procedure as written appears to require that these products be tested as VFI, though that kind of performance is very occasional. VFD products cannot pass the VFI standards, however. DOE noted that they had responded in recent weeks to a NEMA member employee about this issue. NEMA will contact that employee and assess the status of this concern and share this among its UPS members for consideration and potential further comment.

For information, NEMA members who work in IEC activities noted that IEC test procedures for UPS are presently being revised and they will let the DOE know if any concerns arise in those discussions in terms of decreased harmonization or other issues.

The meeting closed with a summary of the discussions, and review of outstanding data and information NEMA and its members will be researching.

NEMA again thanks the DOE for this opportunity to discuss and hopefully improve the pre-publication UPS standards prior to final publication.

If you have any questions on these comments, please contact me at 703-841-3268 or alex.boesenberg@nema.org.

Sincerely,

Alex Boesenberg
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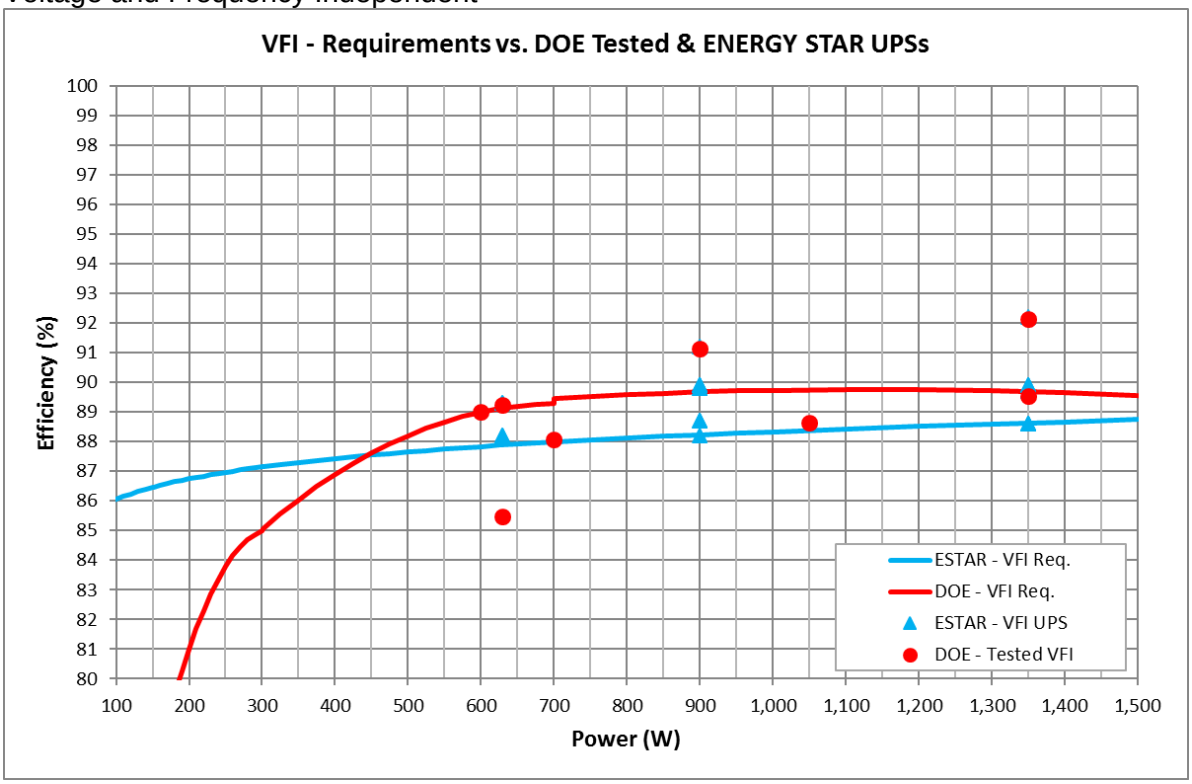
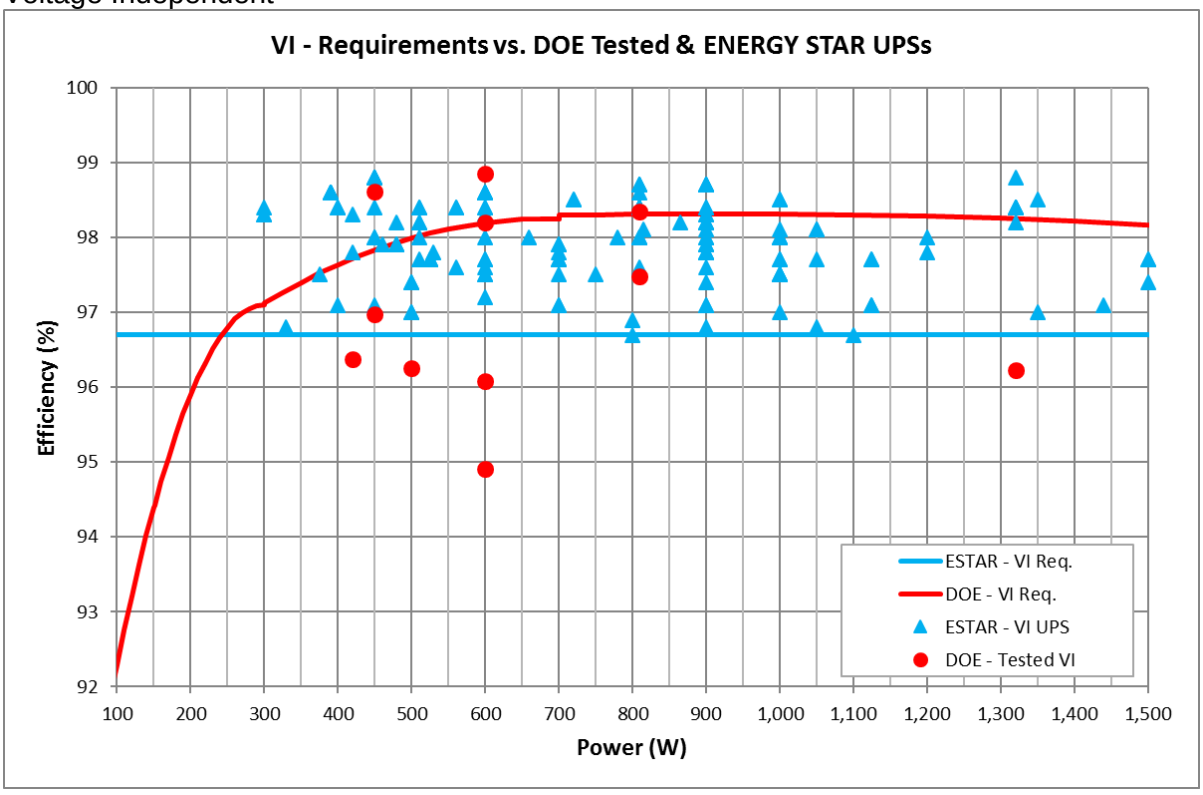
National Electrical Manufacturers Association

Enclosure 1: Graphs of UPS Efficiency Data versus Current and Pre-publication Standards

Voltage and Frequency Independent



Voltage Independent



Voltage and Frequency Dependent